

Product Brief January 1980

PDS 8000TM DEVELOPMENT SYSTEM



The integrated approach to systems design.



A COMPREHENSIVE APPROACH TO SYSTEM DESIGN WITH ZILOG MICROPROCESSORS

Only Zilog offers you everything you need to meet your real-world microprocessor system design needs.

1

A support package for every Zilog microprocessor. Available today.

2

As you'd expect, the best support package you can get for the Z80 and the Z8000; your only support for the Z8.

3

Rapid delivery. The PDS 8000 is in stock at a nearby Zilog distributor right now.

4

A program of compatible upgrading and expansion designed to protect your PDS 8000 investment for years to come.

5

Proven system hardware and software. Z80-based, the bugs have been worked out in thousands of OEM applications.

6

Zilog training programs. A fast way to get the most out of your PDS 8000 system.

7

Ten Zilog field service programs, one is sure to match your service needs.

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Z80 is a registered trademark of Zilog, Inc.

POWERFUL SOFTWARE

Your key to efficient and cost-effective system design.

The largest single cost in system development is increasingly the cost of software development. The more complex the system, the higher this cost becomes. The PDS 8000 system is unique in offering Zilog's own powerful family of complementary procedure and machine-oriented programming languages—PLZ. PLZ offers many special features to simplify and shorten the programming process while making optimum use of the individual architectural strengths of the Z8, Z80 and Z8000 microprocessors.

In keeping with the goal of efficiency, PLZ is algorithmic, with simple, easy-to-use statements resembling plain English. Programs in PLZ run on all Zilog microprocessors and are easily transported from one to the other. In addition, PLZ routines are linkable to FORTRAN and BASIC. Supporting PLZ is Zilog's RIO Operating System with editor, linker and extensive file management capabilities.

For the programmer, the exceptional flexibility of PLZ comes from its two interrelated languages, PLZ/SYS and PLZ/ASM. PLZ/SYS blends many of the elements of PASCAL, PL/1 and C to permit the user to write machine-independent programs in a machine-independent high-level

language. At the same time, within the same program, the user may also write machine-dependent system routines, (such as interrupt-driven I/O drivers) in PLZ/ASM, a machine-dependent language resembling assembly language.

In the PLZ family, program sections or modules may be separately compiled or assembled. The programmer may selectively prevent other modules from accessing data or procedures within a module. And, the programmer can decide, on a module-by-module basis, whether to execute PLZ/SYS interpretively or directly in machine code, permitting programs to be fast, compact, or optimized for an efficient mix of both.

A further benefit of PLZ's modular approach is that when programs are changed, only those modules actually affected need to be recompiled. In addition, a sophisticated symbolic debugging tool, Zilog's PDT, allows the user to debug both high-level and assembly language codes in the same program.

Appropriate versions of PLZ/ASM are available for each Zilog microprocessor. PLZ/SYS is available for the Z80 and, in the near future, also for the Z8000.

In addition, since the PDS 8000 is basically a general-purpose micro-

computer system, Zilog offers the following well-known application programming languages for your other needs:

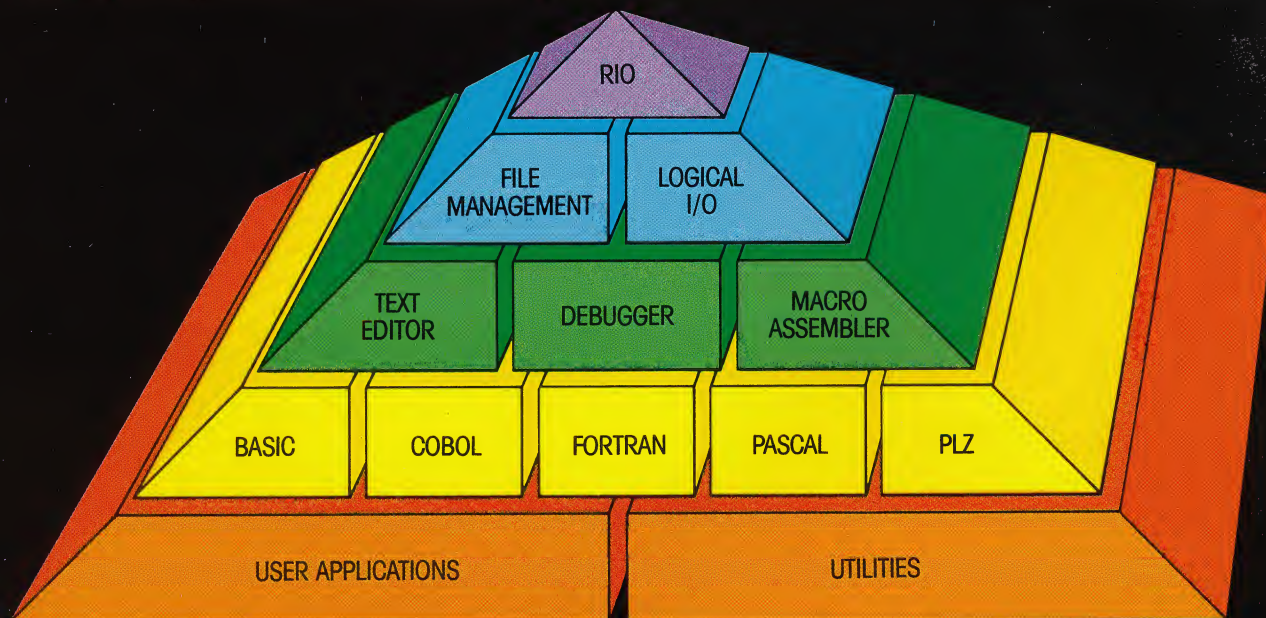
- **BASIC:** A powerful, easily learned interactive language. Zilog's BASIC is an enhancement of the original Dartmouth BASIC and includes string manipulation, subroutine calls, 13 digit BCD numbers for business applications, and two-dimensional arrays.

- **COBOL:** The powerful, business-oriented language. Zilog's COBOL conforms to ANSI x 3.23-1974 Level 1 standards, thus permitting portability of existing programs to Zilog systems. The COBOL package includes indexed, sequential and random file access, intertask communication, video display terminal control and complete cross-reference.

- **FORTRAN:** A widely-used high-level language compiler. Zilog's FORTRAN conforms to the 1966 ANSI standards (except complex numbers) yet contains many enhancements. A complete run-time library of subroutines is supplied.

- **PASCAL:** The well-known, procedure-oriented, high-level language. Highly structured, it sharply reduces the time required to develop and maintain programs. Zilog's PASCAL has been implemented in conformance with Jensen and Wirth's standards.

Software facilities available to Zilog PDS 8000 users are both extensive and complete.



COMPLETE SUPPORT

A PDS 8000 System provides the tools you need to get the most from your Zilog microprocessor.

The Z8000: pace-setter for the '80's, Zilog's powerful 16-bit microprocessor offers unlimited opportunities for imaginative system development. The PDS 8000 gives you full access to all its processing power in one complete, configured software/hardware set. It includes the Z8000 Software Development Package with:

- **Z8000 PLZ/ASM:** A high-level, structured assembler and a subset of the PLZ language family. It permits high-level data declarations and control structures to be intermixed with assembly language code. To reinforce modular programming techniques, PLZ/ASM supports external references, global definitions, absolute and relocatable code.

- **Z8000 LINKER:** Combines separately assembled modules, resolving external references between modules and allowing various modules to be reordered.

- **Z8000 TRANSLATOR:** Provides a quick means to convert an existing Z80 Assembly Language program to Z8000 code and the PLZ/ASM program format.

For use with your Z8000 design projects, the PDS 8000 is supplied with a Z8000 Development Module.

The Z8000 Development Module uses the non-segmented Z8002. It has 2K words of EPROM monitor (expand-

able to 8K words) and 16K words of RAM (expandable to 24K words). Two serial RS232C ports provide stand-alone performance with a CRT terminal, or allow you to use the Z8000 between a host system and your terminal.

It's the efficient and economical way to give your software engineers the hardware they need to debug their routines; the ideal vehicle to give your hardware designers the "hands-on" Z8000 experience they're looking for.

The Z80: the industry-standard 8-bit microprocessor receives new support in the PDS 8000 System for faster, more flexible program development.

Z80 PLZ, a high-level software package now supports Z80-based development. The Z80 PLZ/SYS Compiler permits you to write high-level, machine-independent source modules that are transportable.

Z80 PLZ is a complete family of complementary system programming languages, including a compiler, an interpreter and a high-level structured assembler for the Z80 Microprocessor. PLZ/SYS is the compiler, a high-level, procedure oriented language. PLZ/ASM, the high-level structured assembler, provides constructs similar to PLZ/SYS and allows the mixing of these constructs

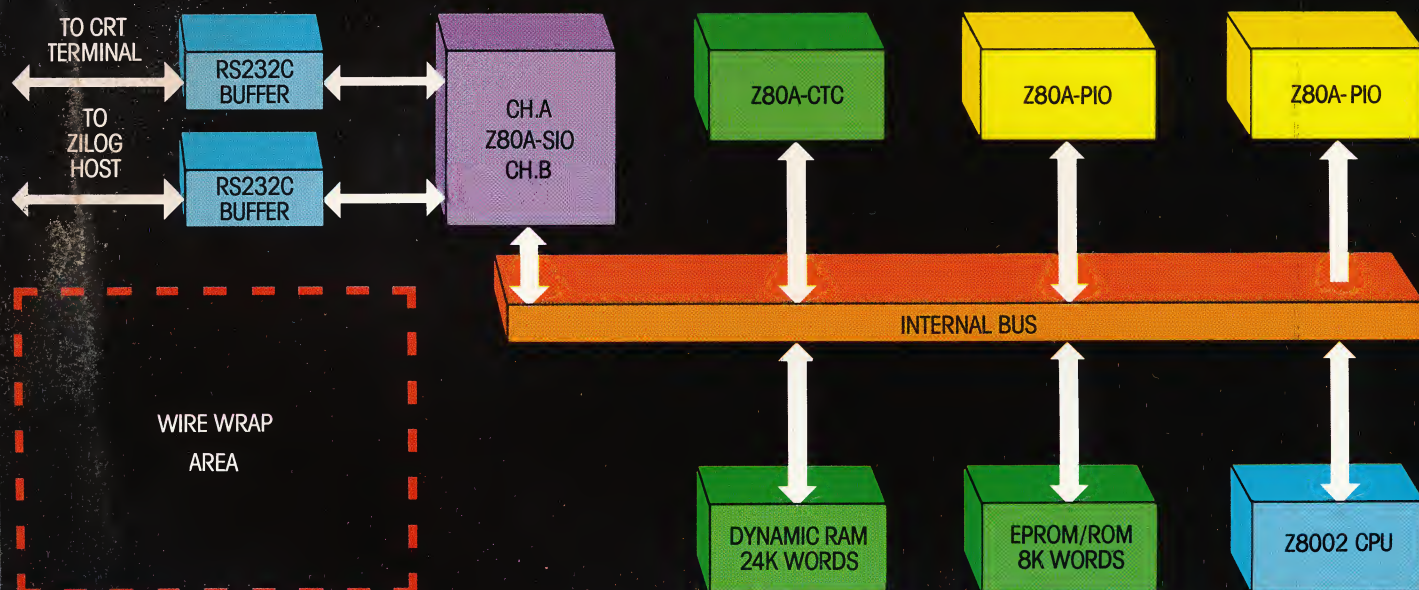
with assembly language statements that manage the processor's resources such as registers, memory and I/O operations.

All in all, the PDS 8000 is the preferred choice for expanding your Z80-based products or developing new ones.

The Z8: the Z8 single-chip microcomputer is one of the most versatile and flexible components available. To allow you to take full advantage of its potential, the PDS 8000 Z8 Software Package offers you a variety of key development elements.

There's the Z8 PLZ/Assembler providing the high-level structured assembler member of the PLZ family for use with the Z8 Microcomputer. Both absolute and relocatable object code formats are supported. Mapping is provided to allow instructions and data to be mapped into the Z8's register, data and program memory spaces.

Block diagram of Z8000 Development Module.



THE RIGHT CHOICES

There's a PDS 8000 System that's "just right" for every application.

The Zilog PDS 8000 Series offers you a broad spectrum of single-user development systems to support the development and debugging of microprocessor-based designs utilizing the Zilog Z8, Z80, or Z8000.

The PDS 8000 has evolved directly from Zilog's experience with OEM microcomputer systems. As a consequence, every element is pre-designed—and pre-tested—for compatibility. Each is ready to plug in and use immediately. As the chart below shows, there is a PDS 8000 system to fit every level of design effort and budget.

All Zilog PDS 8000 Systems are built around a high-level, structured assembler designed to speed program development. System capabilities are easily expanded over a broad range through intelligent CRT console, full emulation, debugging and file storage options.

At the heart of every Zilog PDS 8000 System is a Z80-based microcomputer system with 60K bytes of random access memory. Communication to the system is through a serial I/O port to an intelligent CRT console.

The CRT console offered with the PDS 8000 features a 1920 character display with line drawing capability, text highlighting and a 96 character USASCII set. Integral to the

PDS 8000 is a parallel I/O port configured for a printer interface.

For your file storage needs, a floppy disk subsystem is available which provides an additional 600K bytes of file storage. Alternatively, a cartridge disk subsystem offers 10M bytes of storage, 5M bytes of which are removable.

Further expansion is accomplished through plug-in boards. Options include: an EPROM/PROM programmer, parallel I/O, and serial I/O. Also available for use with the system is a 132 column, dot matrix, 120 cps character impact printer.

In addition to hardware compatibility, the PDS 8000 has also been designed to permit easy and systematic software enhancements. Add this to the many configuration choices open to you, and it is clear that a Zilog PDS 8000 Development

System can provide a substantial saving of time and effort in the achievement of your system design goals.



Choose the PDS 8000 System you need today. Easily upgrade to any other PDS 8000 configuration tomorrow.

MODEL	ENCLOSURE		DISK STORAGE			CRT TERM.	PRINTER TERM.	EVALUATION BD.		EMULATION SUPPORT		
	DESK	RACK	FLOPPY	CRTG.	CAPACITY			Z8	Z8000	Z8	Z80	Z8000
PDS 8000 MODEL 5	●		●		600 KB	●	▲	▲	▲	▲	▲	▲
PDS 8000 MODEL 10	●		●		600 KB	●	▲	▲	▲	▲	▲	▲
PDS 8000 MODEL 15	●		●		600 KB	●	▲	▲	●	▲	▲	▲
PDS 8000 MODEL 20		●	▲	●	10 MB	●	▲	▲	▲	▲	▲	▲
PDS 8000 MODEL 25		●	▲	●	10 MB	●	▲	▲	▲	▲	▲	▲
PDS 8000 MODEL 30		●	▲	●	10 MB	●	▲	▲	●	▲	▲	▲

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Zilog. Setting the pace. Since its founding in 1974, Zilog has established new levels of microcomputer performance. Zilog's Z80 is the industry standard for 8-bit microprocessors. The innovative 16-bit Z8000 is the first microprocessor to provide large computer performance at microprocessor prices. Committed to providing broad-based leadership and support, Zilog manufactures a complete line of

microprocessors, microcomputers, boards, computer systems, development systems, memory devices and associated software.

An affiliate of Exxon Enterprises, Inc., Zilog is headquartered in Cupertino, California. Additional production facilities are located in Nampa, Idaho, and in the Philippines. Zilog has a worldwide network of sales offices, representatives and distributors.